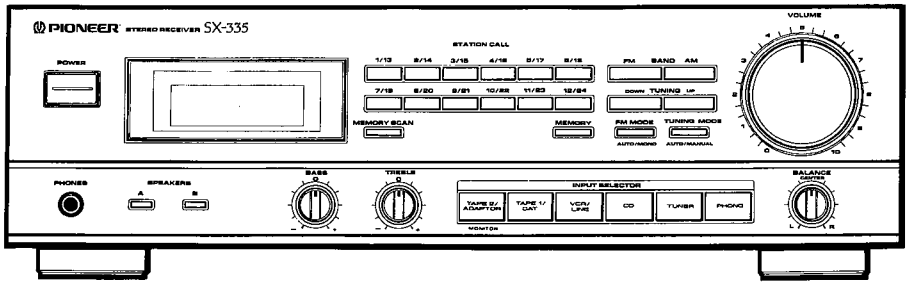
Operating Instructions

STEREO RECEIVER

SX-335
SX-225

HB



• The illustration shows model SX-335.

Thank you for buying this Pioneer product.
Please read through these operating instructions so you will know how to operate your unit properly. After you have finished reading the instructions, keep the manual in a safe place for future reference.
In some countries or regions, the shape of the power plug and power output may sometimes differ from that shown in the drawings. However, the method of connecting and operating the unit is the same.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT 1

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance

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The future of sound and vision.

IMPORTANT 2

If the apparatus is fitted with AC mains power outlet(s), see REAR PANEL FACILITIES for convenient connection of additional Hi-Fi component(s). Make all connections to the AC outlet(s) and the signal terminals first. Connect the plug to the wall socket last, make sure that the power switch is off. Disconnect the wall plug when the equipment is not in (regular) use, e.g. when on vacation.

FOR USE IN THE UNITED KINGDOM

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured marking identifying the terminals in your plug proceed as follows:
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.
Equipment sold in the U.K. is not supplied with a power plug.

WARNING!

Lithium batteries. Danger of explosion. Replacement must be done by qualified personnel and only by following the instructions given in the service manual.

ADVARSEL!

Lithiumbatteri. Eksplosionsfare. Udskiftning må kun foretages af en sagkyndig, og som beskrevet i servicemanualen.

VAROITUS!

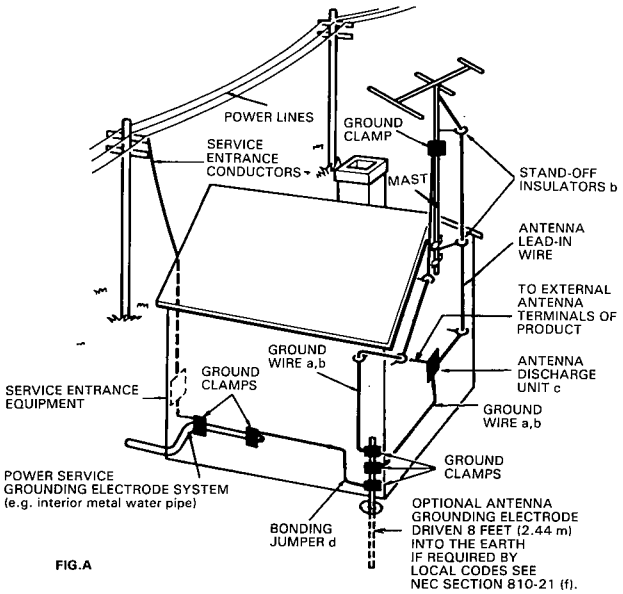
Litiumparistot. Räjähdysvaara. Vaihdon saa suorittaa ainoastaan asiantunteva huoltoteknikko noudattamalla huolto-ohjeessa annettuja ohjeita.

SAFETY INSTRUCTIONS

READ INSTRUCTIONS — All the safety and operating instructions should be read before the appliance is operated.
RETAIN INSTRUCTIONS — The operating instructions should be retained for future reference.
HEED WARNING — All warnings on the appliance and in the operating instructions should be adhered to.
FOLLOW INSTRUCTIONS — All operating and use instructions should be followed.
WATER AND MOISTURE — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
LOCATION — The appliance should be installed in a stable location.
WALL OR CEILING MOUNTING — The appliance should not be mounted to a wall or ceiling.
VENTILATION — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
HEAT — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
POWER SOURCES — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
POWER-CORD PROTECTION — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
POLARIZATION — If your purchased product is provided with a polarized power plug, please read the following instructions. This product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
CLEANING — The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.
POWER LINES — An outdoor antenna should be located away from power lines.
NONUSE PERIODS — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
OBJECT AND LIQUID ENTRY — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
DAMAGE REQUIRING SERVICE — The appliance should be serviced by a Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped; or the enclosure damaged.

SERVICING — The user should not attempt to service the appliance beyond that described in the operating instructions. For all other servicing, contact the nearest Pioneer authorized service center.


POWER LINES
GROUND CLAMP
SERVICE ENTRANCE CONDUCTORS
MAST
STAND-OFF INSULATORS b
ANTENNA LEAD-IN WIRE
TO EXTERNAL ANTENNA TERMINALS OF PRODUCT
ANTENNA DISCHARGE UNIT c
GROUND WIRE a,b
GROUND WIRE a,b
GROUND CLAMPS
SERVICE ENTRANCE EQUIPMENT
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (e.g. interior metal water pipe)
BONDING JUMPER d
OPTIONAL ANTENNA GROUNDING ELECTRODE DRIVEN 8 FEET (2.44 m) INTO THE EARTH IF REQUIRED BY LOCAL CODES SEE NEC SECTION 810-21 (f).
FIG.A

OUTDOOR ANTENNA GROUNDING — If an outside antenna is connected to the antenna terminal, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.
In the U.S.A. section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Fig. A.
CART — An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

a) Use No.10 AWG (5.3 mm²) copper, No.8 AWG (8.4 mm²) aluminum, No.17 AWG (1.0 mm²) copper-clad steel, bronze wire, or larger as ground wire.
b) Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.
c) Mount antenna discharge unit as closely as possible to where lead-in enters house.
d) Use jumper wire not smaller than No.6 AWG (13.3 mm²) copper, or the equivalent, when a separate antenna-grounding electrode is used.
See NEC Section 810-21 (j).

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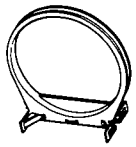
CHECKING ACCESSORY ITEMS

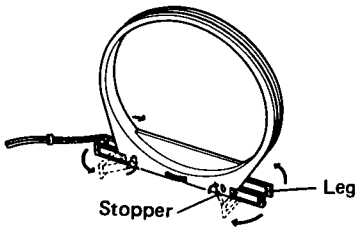
FM T-type Antenna



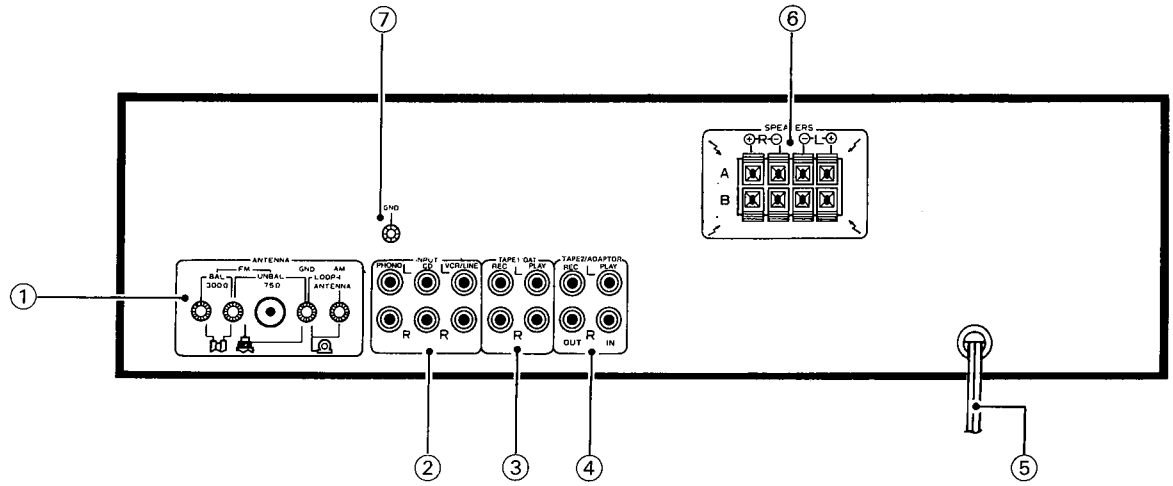
AM Loop Antenna

AM loop antenna construction

- Unfold all four legs of the AM loop antenna toward the outside, and insert the stopper inside the legs into the hole in the AM loop antenna and secure it in position.



REAR PANEL FACILITIES



① FM/AM ANTENNA terminals

Use these antenna terminals for receiving FM and AM broadcasts.

② INPUT jacks

PHONO...Connect to the output cables from a turntable.
CD...Connect to the output jacks of a compact disc player.
VCR/LINE...Connect to the output jacks of a video cassette recorder, etc.

③ TAPE 1/DAT jacks

Connect these jacks to a cassette deck or digital audio tape deck (DAT).

④ TAPE 2/ADAPTOR jacks

Connect these jacks to a cassette deck or Audio Adaptor.

⑤ POWER CORD

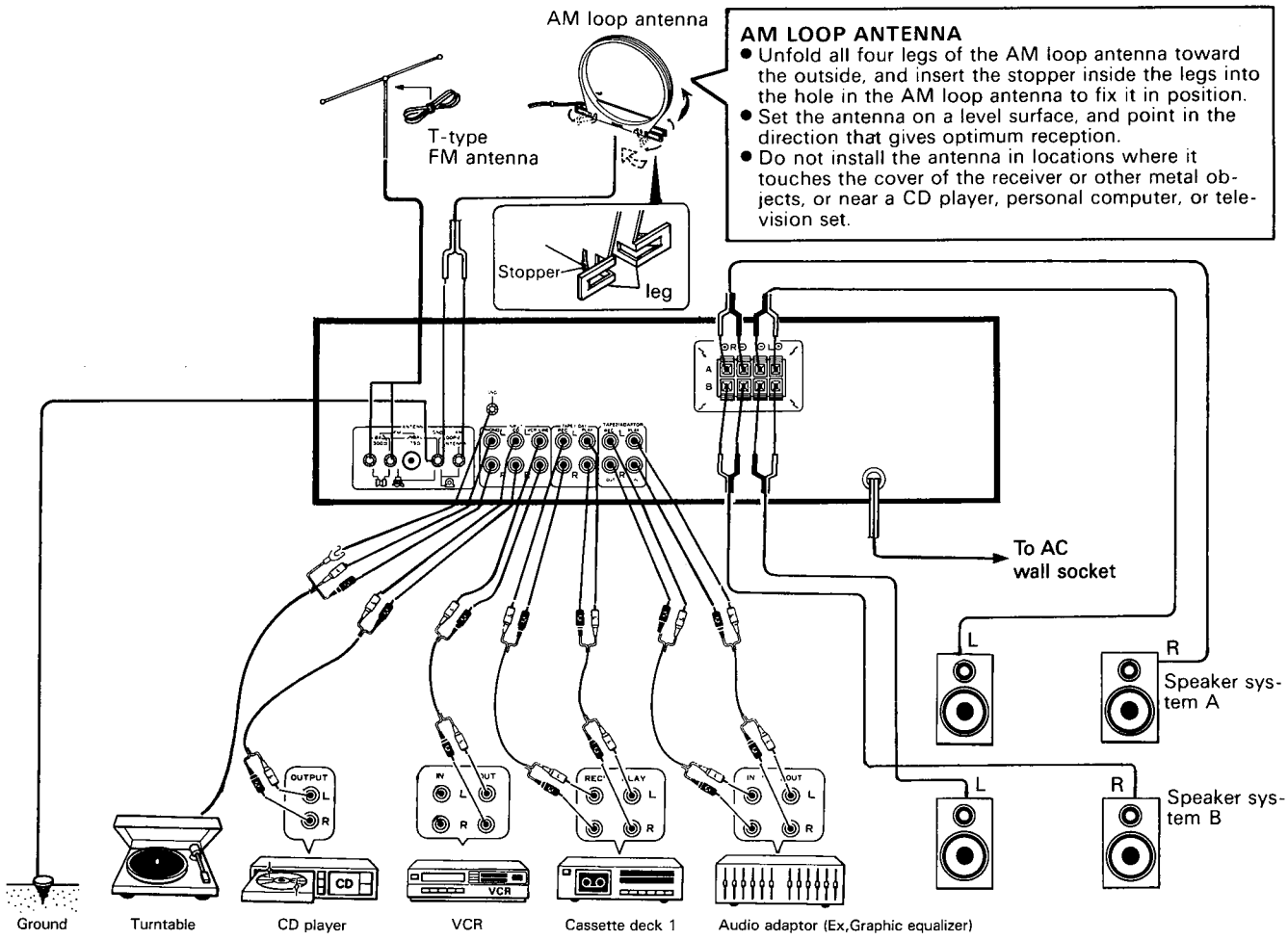
⑥ SPEAKERS terminals

A: Connect to a first set of speakers.
B: Connect to a second set of speakers.

⑦ GND terminal

Connect to the ground lead of a turntable.

CONNECTIONS


AM loop antenna
T-type
FM antenna
Stopper
leg
AM LOOP ANTENNA
● Unfold all four legs of the AM loop antenna toward the outside, and insert the stopper inside the legs into the hole in the AM loop antenna to fix it in position.
● Set the antenna on a level surface, and point in the direction that gives optimum reception.
● Do not install the antenna in locations where it touches the cover of the receiver or other metal objects, or near a CD player, personal computer, or television set.
To AC
wall socket
L
R
Speaker system A
L
R
Speaker system B
Ground
Turntable
CD player
VCR
Cassette deck 1
Audio adaptor (Ex,Graphic equalizer)

Grounding

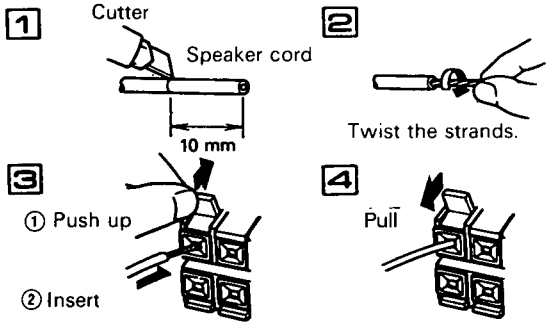
Although grounding is not necessary for reception it is recommended for protection against damage from lightning if an outdoor FM antenna is used. Grounding is recommended as well, to help reduce noise and hum.

NOTE:

Never make the ground connection to a gas pipe as sparks could cause the gas to ignite.

Audio input/output jacks of this unit are dull and tin-plated, aiming at high quality.

Connecting the speaker cords



Connecting the input/output cords

When other stereo components are connected, note the following instructions:

- Connect the plugs properly. Faulty connections can cause noise and also breakdowns and failures.
- The white terminal is for the left channel and the red terminal is for the right channel.

NOTE ABOUT SPEAKER CONNECTIONS

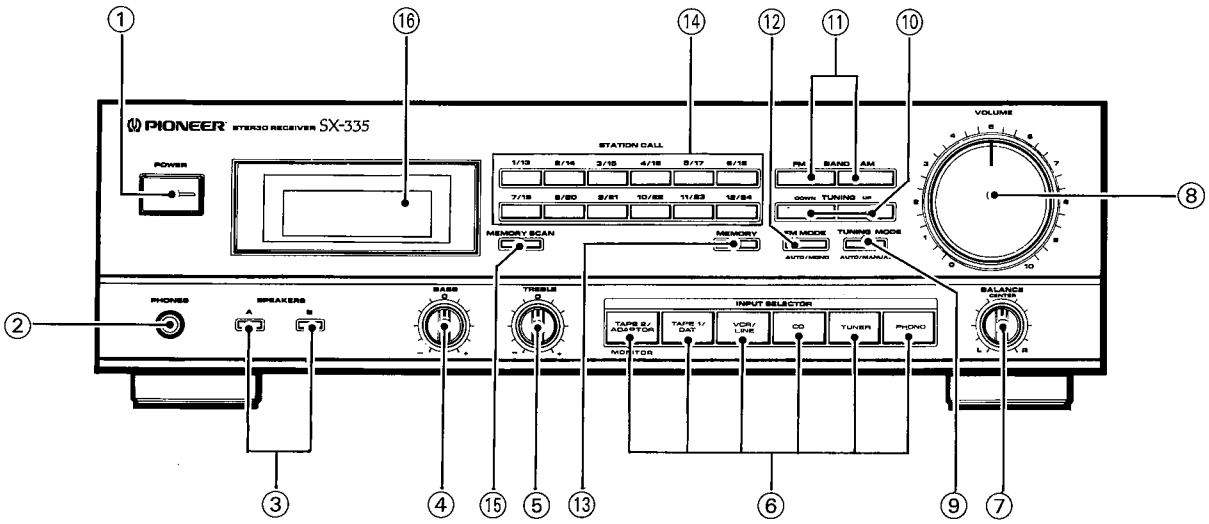
When using either A or B:

- The speaker systems used should have an impedance of between 4 and 16 Ω (SX-335), 8 and 16 Ω (SX-225).

When using A and B simultaneously:

- The speaker systems used should have an impedance of between 8 and 16 Ω.
- Be sure that connections are secure. Check to make sure that wires do not protrude from their terminals.
- Do not allow the speaker cords to become shorted. Damage may result to your unit.
- Do not attempt to simultaneously connect two sets of speakers to a single side (A or B). When using two sets of speakers, connect one set to side A and one set to side B.

FRONT PANEL FACILITIES



① POWER switch

When this switch is pressed, power is supplied to the unit. Press the switch again to turn power off.

② PHONES jack

Connect the plug on your headphones to this jack. To listen to a program through the headphones only, set both SPEAKERS A and B switches to the OFF position.

③ SPEAKERS switches (■OFF, ■ON)

These are used to select the speaker through which you wish to listen.

A: When the speakers connected to A terminals are in use.

B: When the speakers connected to B terminals are in use.

- Turn both A and B speakers to OFF position when only the headphones are in use.

NOTE: (SX-225 only)

No sound will be heard through the speakers when both A and B switches are depressed if only one set of speakers has been connected to either A or B SPEAKERS terminals.

④ BASS tone control

Use to adjust the low-frequency tone.

The center position is the "0" (normal) position. When moved to the right, low-frequency tones are emphasized; when moved to the left, low-frequency tones are de-emphasized.

⑤ TREBLE tone control

Use to adjust the high-frequency tone.

The center position is the "0" (normal) position. When moved to the right, high-frequency tones are emphasized; when moved to the left, high-frequency tones are de-emphasized.

⑥ INPUT SELECTOR switches

Use to select playback source.

[TAPE 1/DAT]—Press when listening to tape playback with a cassette deck or digital audio tape deck (DAT).

[VCR/LINE] — Press when listening to programs from a component connected to the VCR/LINE terminals.

[CD] — Press when listening to compact disc playback with a CD player.

[TUNER] — Press when listening to AM or FM broadcasts with a tuner.

[PHONO] — Press when listening to record playback on a turntable.

MONITOR switch

[TAPE 2/ADAPTOR]—Press when listening to tape playback with a cassette deck or when using a graphic equalizer.

⑦ BALANCE control

Should normally be left in the center position. Adjust balance if sound is louder from one of the speakers. If the right side is louder, turn toward the LEFT position and if the left side is louder, turn toward the RIGHT position.

⑧ VOLUME control

Use to adjust volume level.

⑨ TUNING MODE AUTO/MANUAL switch

Works during FM reception.

Use this switch to select either the AUTO mode or the MANUAL mode.

When the "AUTO" indicator is lit, the receiver is in the AUTO mode. (See page 8)

⑩ TUNING switches (DOWN, UP)

UP: The FM or AM band is scanned in the direction of increasing frequency.

DOWN: The FM or AM band is scanned in the direction of decreasing frequency.

⑪ BAND selector switches
These switches are used to select either AM or FM reception.
AM: Push this switch for AM reception.
FM: Push this switch for FM reception.

⑫ FM MODE AUTO/MONO selector switch
Use to select the auto stereo mode or monaural mode when listening to FM broadcasts.
Auto stereo mode:
Normally leave in this mode for reception. When a stereo FM broadcast is received, it will be automatically reproduced in stereo sound.
Monaural mode:
When receiving distant stations or stations with weak broadcast signals, the input signal may be weak, thus resulting in increasing noise during FM stereo broadcasts. In this event, setting the receiver to the monaural mode will reduce the noise. In this case, however, FM stereo broadcasts will be reproduced in monaural sound.
The monaural mode has been selected when the FM MONO indicator is lit.

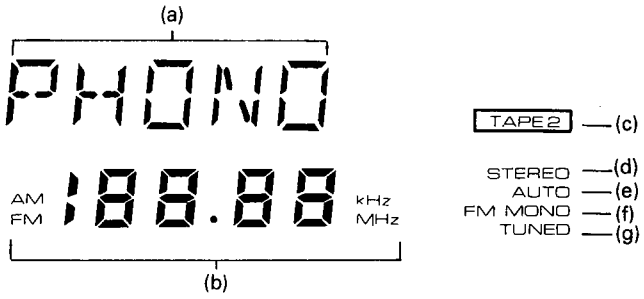
NOTE:
This switch has no effect on reception of AM broadcasts.

⑬ MEMORY switch
This is used to memorize stations. When the switch is pressed, the frequency indicator will flash. To memorize the frequency of any station, press a STATION CALL switch while the frequency indicator is flashing. (See page 9)

⑭ STATION CALL switches
These switches are used to preset and recall desired broadcasting stations.

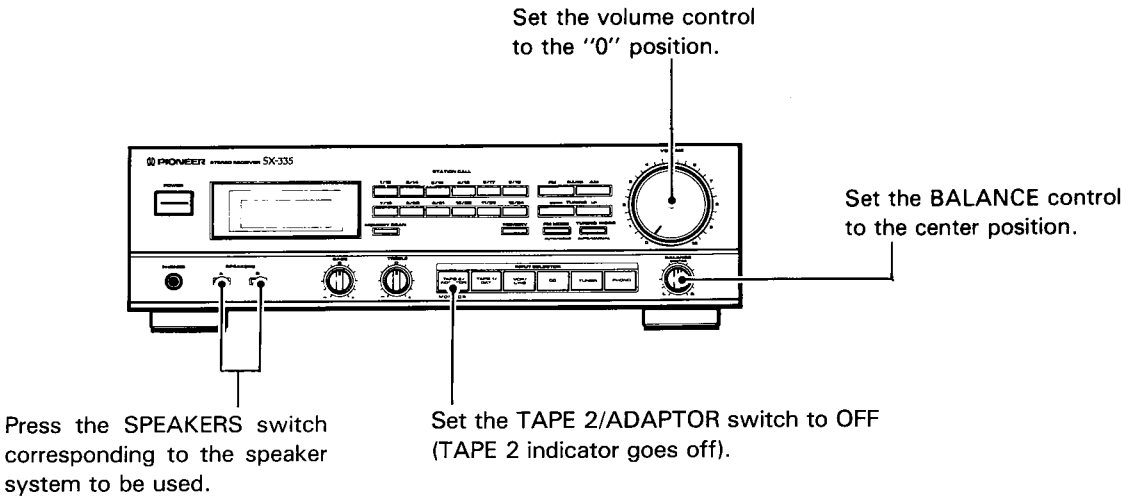
⑮ MEMORY SCAN switch
Press this switch to scan the stations in the memory.

⑯ OPERATION DISPLAY panel
(a) Indicates the function selected by the INPUT SELECTOR.
(b) Indicates frequency or channel (STATION CALL number).
(c) Indicates TAPE 2 monitor
(d) FM STEREO indicator
(e) AUTO tuning indicator
(f) FM MONO indicator
(g) TUNED indicator



SETTING THE UNIT BEFORE OPERATION

- **Before operating the unit, be sure to set it as shown below.**

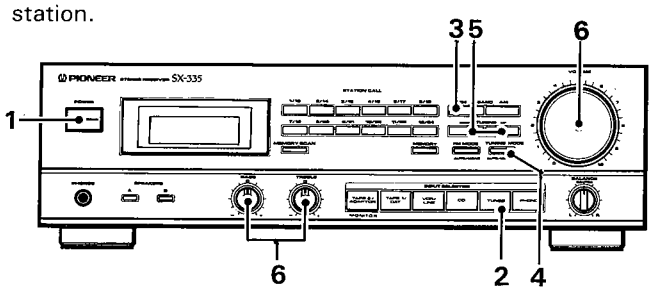

Set the volume control to the "0" position.
Set the BALANCE control to the center position.
Press the SPEAKERS switch corresponding to the speaker system to be used.
Set the TAPE 2/ADAPTOR switch to OFF (TAPE 2 indicator goes off).

LISTENING TO THE BROADCAST

- Check that all terminals are properly connected before switching on the unit.

AUTO TUNING (FM reception)

The electronic tuning circuit inside the unit will search for the station.

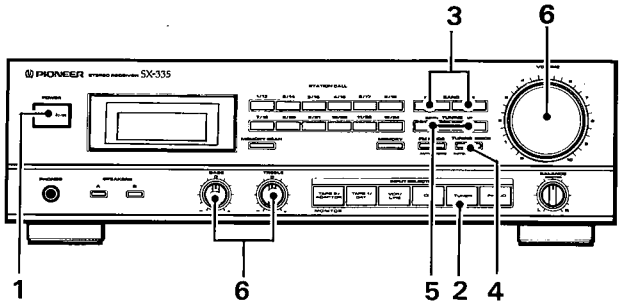


1. **Turn on the POWER switch.**
2. **Press the TUNER switch of the INPUT SELECTOR switches.**
3. **Set the BAND selector switches for FM reception.**
4. **Press the TUNING MODE AUTO/ MANUAL switch to establish the AUTO tuning mode (the AUTO indicator lights).**
5. **Press the TUNING switches "UP" or "DOWN" for a higher or lower frequency as desired.**

   The frequency will change rapidly during scanning. The AUTO TUNING will stop automatically when a station is located and the TUNED indicator also lights up.

   NOTE:
   When the AUTO TUNING is in use, reception may not be possible over long distances or when signals are weak. At these times manual tuning is recommended.
6. **Adjust the VOLUME control and the tone controls.**

MANUAL TUNING (FM/AM reception)



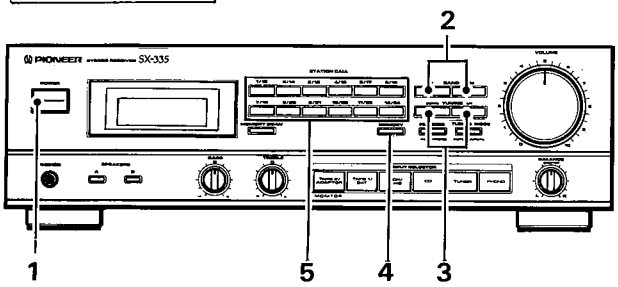
1. **Turn on the POWER switch.**
2. **Press the TUNER switch of the INPUT SELECTOR switches.**
3. **Select your desired broadcasting band using the BAND selector switches.**
4. **Press the TUNING MODE AUTO/MANUAL switch to establish the MANUAL tuning mode (the AUTO indicator goes off).**
5. **Use the TUNING switches to locate the frequency of the desired station.**

   For step-by-step searching, press the TUNING switch once and release it immediately. For continuous rapid scanning keep the TUNING switch pressed. The TUNED indicator will light up when the desired station is tuned in best.

   NOTE:
   The TUNED indicator will not function for broadcasts received over long distances or when signals are weak.
6. **Adjust the VOLUME control and the tone controls.**

PRESETTING STATIONS

PRESETTING



1. **Turn on the POWER switch of the unit.**
2. **Select band of station to be memorized.**
3. **Tune is desired station.**
   - See the AUTO TUNING section for information on reception using Auto Tuning.
   - See the MANUAL TUNING section for information on reception using Manual Tuning.

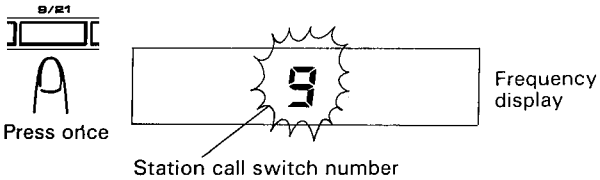
When memorizing an FM station, either press the FM MODE switch to memorize the station in the monaural mode, or memorize the station in the auto stereo mode (with FM MODE switch left in the AUTO position).

4. **Press the MEMORY switch.**
   - The display will flash (about 5 seconds).

5. **Press the STATION CALL switch.**
   - While the display is flashing, press the switch corresponding to the station which you wish to preset or re-preset.

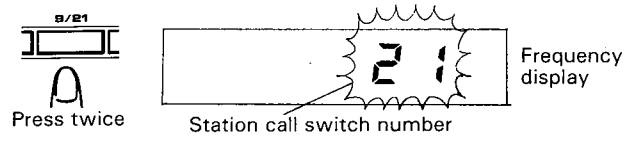
When presetting a station to Mode 1 (e.g. presetting a station to No. 9):

By pressing the STATION CALL 9/21 switch once, the station will be preset to Mode 1. (1 ~ 12)



When presetting a station to Mode 2 (e.g. presetting a station to No. 21):

By pressing the STATION CALL 9/21 switch twice, the station will be preset to Mode 2. (13 ~ 24)

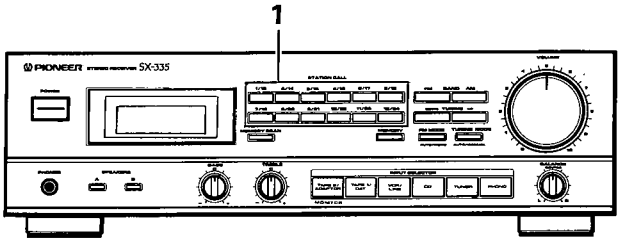


- After you press the STATION CALL switch, the display will flash for about 3 seconds, then the station will be memorized. If you press another switch while the display is flashing, the station will not be memorized.

MEMORY SCAN

Pressing the MEMORY SCAN switch, radio broadcasts preset in the memory are scanned in order for convenient confirmation. The scanning of preset stations can be cancelled by pressing one of the STATION CALL switches.

RECEPTION USING PRESET TUNING



1. **Press the STATION CALL switch into which the desired station has been memorized.**
   - To listen to a Mode 1 broadcast, press the switch once, and to listen to a Mode 2 broadcast, press it twice.
   - By pressing the STATION CALL switch, the switch number will be displayed, then the frequency will be displayed.

NOTE:

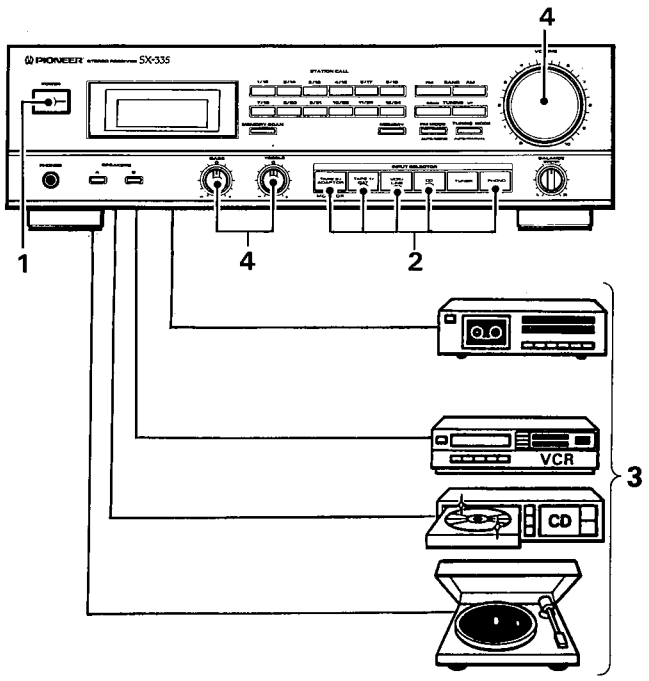
- *If a preset station has been erased, consult with a Pioneer authorized service station.*

In this way, simple and accurate reception of any desired station is possible.

Last station memory

- The last station received on either band is memorized and can be tuned in again just by pressing TUNER and BAND selector switches.
- These last two stations are in memory even if POWER is turned off.

TO LISTEN TO OTHER MUSIC SOURCES

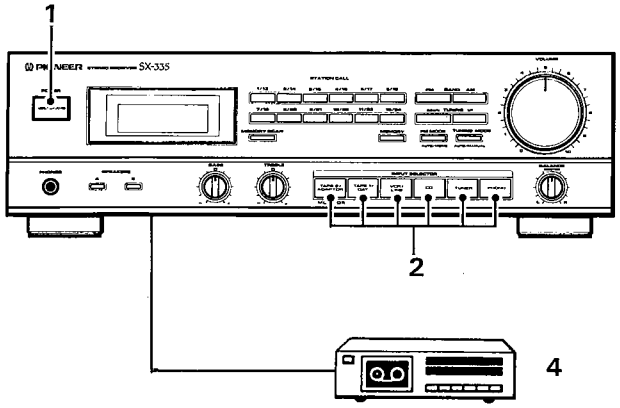


1. **Turn on the POWER switch of the unit. Also turn on the power to the stereo components you wish to use.**
2. **Use the INPUT SELECTOR switches and tape monitor switches as appropriate to select the desired program source.**

	INPUT SELECTOR switch	TAPE 2/ADAPTOR (MONITOR) switch
To listen to a tape on the cassette deck connected to TAPE 2/ADAPTOR jacks.	—	ON
To listen to the component connected to VCR/LINE jacks.	VCR/LINE	OFF
To listen to a CD	CD	OFF
To listen to records	PHONO	OFF
To listen to TAPE 1/ DAT	TAPE 1/DAT	OFF

3. **Operate the appropriate stereo component to play back the program source.**
4. **Adjust the VOLUME control and the tone controls.**

TAPE RECORDING



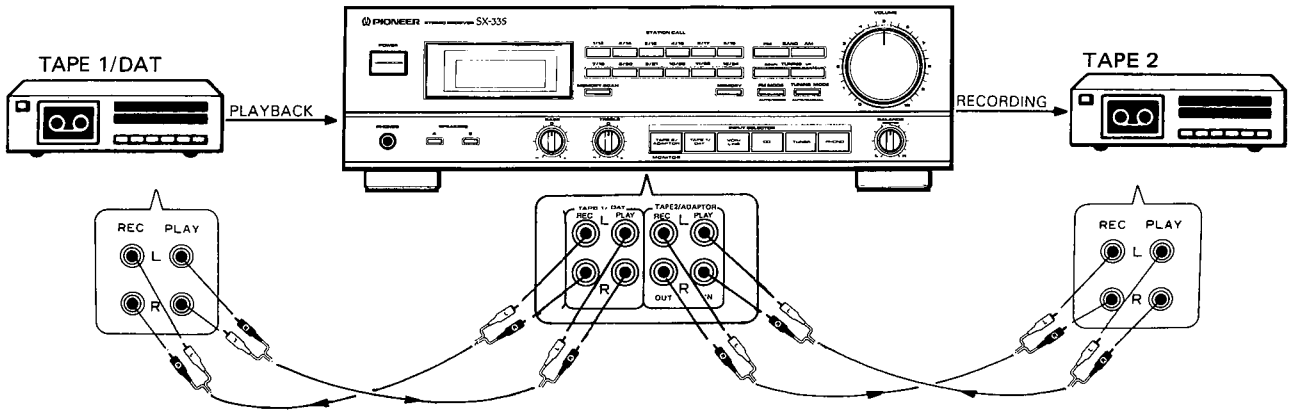
You can record an FM or AM broadcast, or a sound source connected to the VCR/LINE, CD, PHONO, or TAPE 1/DAT jacks.

1. **Turn on the POWER switch of the unit.**
2. **Select and operate the sound source to be recorded.**
3. **Operate the cassette deck connected to the TAPE 1/DAT or TAPE 2/ADAPTOR jacks.**
   - For details of operating the cassette deck, read the operating instructions of the cassette deck.

COPYING TAPES

When two cassette decks are used, the sound played back on the deck connected to the TAPE 1/DAT jacks can be recorded on the deck connected to the TAPE 2/ADAPTOR jacks.

- To make a tape copy with contents identical to the original tape.
- To edit a recording of an FM broadcast in order to cut out unwanted commercials, recording only the desired material onto another tape.



1. **Load the playback tape (i.e. the pre-recorded tape) in the deck connected to the TAPE1/DAT jacks, and the tape to be recorded in the other deck connected to the TAPE2/ADAPTOR jacks.**
2. **Press the proper INPUT SELECTOR switch.**
   - To copy from the cassette deck connected to TAPE 1/DAT jacks to the deck connected to the TAPE 2/ADAPTOR jacks...Press TAPE 1/DAT.
3. **Operate the cassette decks to begin copying.**
   Set the cassette deck with the original (playback) tape to the playback mode, and set the cassette deck with the non-recorded tape to the recording mode.

HINTS FOR BETTER RECEPTION

OUTDOOR FM ANTENNA

The main advantage of FM over AM is the quality of the broadcast signal. In order to benefit fully from the high signal quality of FM broadcasts, it is recommended that a special-purpose FM antenna be installed. In weak signal areas, a multi-element antenna should be used.

NOTE:
Consult your dealer as to the selection and actual installation of the FM antenna.

FM ANTENNA CONNECTIONS

There are two ways of connecting the FM antenna to the antenna input terminals: with a 300 Ω twin-lead feeder or with a 75 Ω coaxial cable. If full justice is to be done to the tuner's performance, a 75 Ω coaxial cable is recommended since it is more immune than the twin-lead feeder to noise and interference from external sources. If an FM antenna has already been erected outdoors, connect it, referring to the figure.

GROUNDING

Grounding is recommended if reception of FM programs is impaired by noise. To ground, connect a thick polyvinyl wire to the GND terminal and attach the other end to a metal water pipe or grounding bar or wind it around a copper plate and bury it.

NOTE:
Never connect a wire to a gas pipe for grounding since sparks may ignite the gas.

OUTDOOR AM ANTENNAS

If it is not possible to obtain adequate AM reception even by changing the orientation of the AM loop antenna, a separate indoor antenna, or an outdoor antenna should be installed.

INDOOR AM ANTENNA

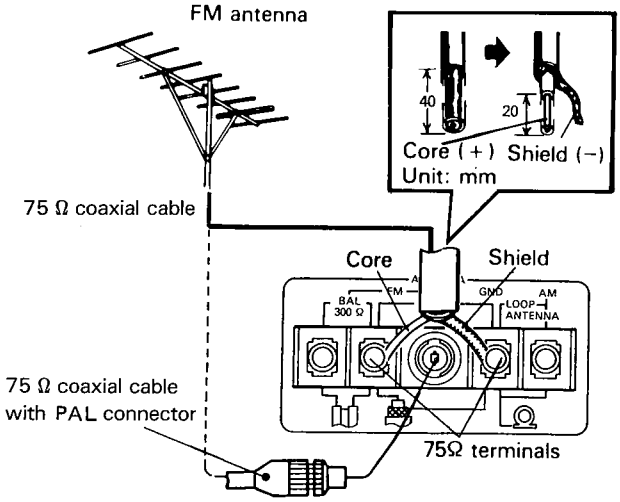
Use a vinyl insulated wire (5 — 6 m) and connect one end to the AM antenna terminal and affix the other end to the wall or ceiling, as high as possible.

OUTDOOR AM ANTENNA

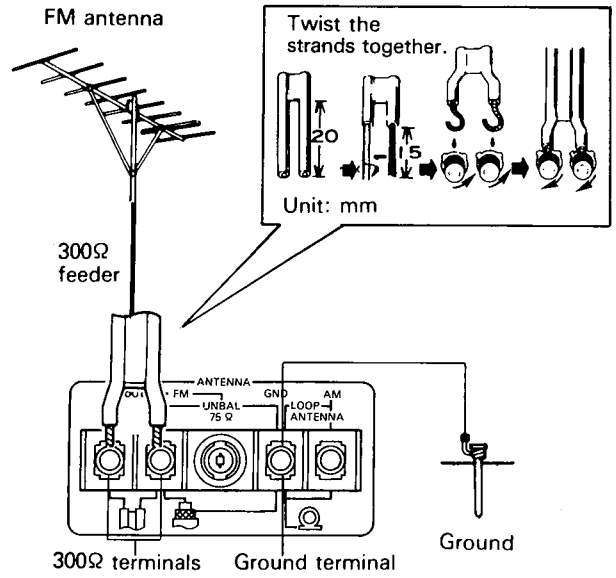
If reception quality is not improved sufficiently even when an indoor antenna is used, a vinyl insulated wire should be installed outside and fixed in place.

NOTE:
Do not detach the AM loop antenna when using an indoor or an outdoor AM antenna.

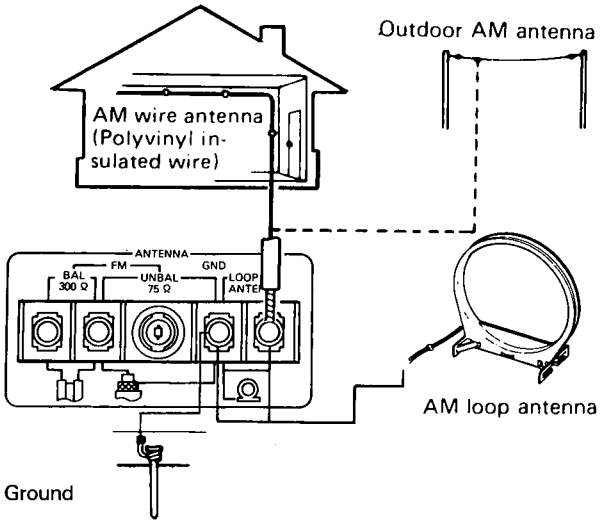
Connecting a coaxial cable



Connecting a 300 Ω feeder



Connecting the Outdoor AM antenna



TROUBLESHOOTING

Incorrect operations are often mistaken for trouble and malfunctions. If you think that there is something wrong with this component, check the points below. Sometimes the trouble may lie in another component. Investigate the other components and electrical appliances being used.
If the trouble cannot be rectified even after exercising the checks listed below, ask your nearest PIONEER authorized service center or your dealer to carry out repair work.

Symptom	Cause	Remedy
Power does not come on even when POWER switch is pressed.	• Power cord is disconnected.	• Connect cord securely.
No sound is produced, even when INPUT SELECTOR switches are selected.	• VOLUME control is set to 0 (MIN).	• Turn up the VOLUME control.
	• Speaker connecting wires are disconnected from speaker terminals.	• Connect wires to terminals securely.
	• One or both of the input cords are disconnected.	• Connect input cords securely.
	• TAPE 2 switch is in the ON position.	• Press the switch to the OFF position.
Sound is produced from one speaker only.	• BALANCE control is set too far to one side or the other.	• Set BALANCE control to center position.
	• One of the speaker connecting wires or input cords is disconnected.	• Connect wires and cords securely.
Noise is produced during reception of AM broadcasts when the power switch of this unit or other components is turned ON or OFF.	• AM loop antenna picks up electrical noise created by switch contacts.	• Place AM loop antenna as far away as possible from this and other components.
High noise level.	• Station has not been tuned in to correct frequency.	• Tune the station in correctly.
	FM reception • Accessory T-type antenna remains bundled up or it is not pointing in the right direction.	• Stretch both ends of antenna taut and turn to a direction yielding optimum reception.
	• Weak broadcasting station signals.	• Replace accessory T-type antenna with outdoor FM antenna.
	• Noise picked up from other equipment (or, in particular, from passing automobiles). • "Multipath" results when signals from broadcasting station entering antenna directry are mixed with signals which have been reflected by mountains or high buildings on their way to antenna. This results in distorted sound and noise.	• Try altering direction and mounting position of antenna. If an outdoor antenna has been erected, place it as far away as possible from passing traffic and use a 75 Ω coaxial cable for connections.
	AM reception • AM antenna not pointing in right direction.	• Change AM antenna's direction and find a position where reception is improved.
	• Weak broadcasting station signals.	• Erect outdoor AM antenna or connect ground wire.
	• Noise being picked up from other equipment (especially electrical appliances using motor or fluorescent lights).	• Stop using the appliances generating noise or remove them from the vicinity of stereo equipment.
No auto tuning. (FM reception)	• Input signals are not strong enough.	• If an accessory T-type antenna is used, change over to an outdoor antenna. • Perform manual tuning.

SPECIFICATIONS

[Model SX-335]

Amplifier Section

Continuous Power Output (both channels driven, DIN)
- 1 kHz, T.H.D. 1%, 4 Ω ..... 80 W + 80 W
- 1 kHz, T.H.D. 1%, 8 Ω ..... 65 W + 65 W
- 20 Hz – 20 kHz, T.H.D. 0.07%, 8 Ω ..... 50 W + 50 W

IEC power output
- 63 Hz – 12.5 kHz, T.H.D. 0.7%, 4 Ω ..... 74 W + 74 W
- 63 Hz – 12.5 kHz, T.H.D. 0.7%, 8 Ω ..... 63 W + 63 W

Dynamic power output

2/4/8 Ω ..... 120/110/80 W

Total Harmonic Distortion*
- 1 kHz, 50 W, 8 Ω 0.01%

Input (Sensitivity/Impedance)
- PHONO ..... 2.5 mV/47 kΩ
- CD, VCR/LINE, TAPE 1/DAT, TAPE 2 ..... 150 mV/22 kΩ

Phono Overload Level (T.H.D. 0.01%, 1,000 Hz)
- PHONO ..... 130 mV

Output (Level/Impedance)
- TAPE REC ..... 150 mV/2,2 kΩ

Frequency Response
- PHONO (RIAA Equalization) ..... 20 Hz to 20,000 Hz ±0.5 dB
- CD, VCR/LINE, TAPE 1/DAT, TAPE 2 ..... 10 Hz to 70,000 Hz $^{+0.5}_{-3.0}$dB

Signal-to-Noise Ratio (DIN, continuous power/50 mW)
- PHONO ..... 68 dB/59 dB
- CD, VCR/LINE, TAPE 1/DAT, TAPE 2 ..... 86 dB/60 dB

Tone control
- BASS ..... ±8dB (100Hz)
- TREBLE ..... ±8dB (10kHz)

FM Tuner Section

Frequency range ..... 87.5 MHz to 108 MHz

Usable Sensitivity ..... 10.8 dBf, IHF (0.95 μV/75 Ω)

50 dB Quieting Sensitivity
- MONO ..... 15.3 dBf (1.6 μV/75 Ω)
- STEREO ..... 37.1 dBf (19.5 μV/75 Ω)

Sensitivity (DIN)
- MONO ..... 0.9 μV/75 Ω
- STEREO ..... 29 μV/75 Ω

Signal-to-Noise Ratio
- MONO ..... 78 dB (at 85 dBf)
- STEREO ..... 75 dB (at 85 dBf)

Signal-to-Noise Ratio (DIN)
- MONO ..... 66 dB
- STEREO ..... 66 dB

Distortion
- STEREO ..... 0.3% (1 kHz)

Alternate Channel Selectivity ..... 55 dB (400 kHz)

Stereo Separation ..... 35 dB (1 kHz)

Frequency Response ..... 30 Hz to 15 kHz (±1 dB)

Antenna Input ..... 300 Ω balanced, 75 Ω unbalanced

AM Tuner Section

Frequency range ..... 531 kHz to 1,602 kHz

Sensitivity
- IHF, Loop antenna ..... 300 μV/m

Selectivity ..... 20 dB

Signal-to-Noise Ratio ..... 50 dB

Antenna ..... AM Loop Antenna

Miscellaneous

Power Requirements ..... a.c. 240 Volts ~, 50/60 Hz

Power Consumption ..... 470 Watts

Dimensions ..... 420(W) x 120(H) x 337(D) mm

Weight (without package) ..... 7.0 kg (15 lb 7 oz)

Furnished Parts

FM T-type Antenna 1

AM Loop Antenna 1

Operating Instructions 1

NOTE:

Specifications and design subject to possible modification without notice due to improvements.

* Measured by audio spectrum analyzer.

[Model SX-225]

Amplifier Section

Continuous Power Output (both channels driven, DIN)
- 1 kHz, T.H.D. 1%, 4 Ω ..... 55 W + 55 W
- 1 kHz, T.H.D. 1%, 8 Ω ..... 45 W + 45 W
- 40 Hz – 20 kHz, T.H.D. 0.07%, 8 Ω ..... 38 W + 38 W

IEC power output
- 63 Hz – 12.5 kHz, T.H.D. 0.7%, 4 Ω ..... 49 W + 49 W
- 63 Hz – 12.5 kHz, T.H.D. 0.7%, 8 Ω ..... 45 W + 45 W

Dynamic power output

4/8 Ω ..... 70/55 W

Total Harmonic Distortion*
- 1 kHz, 38 W, 8 Ω 0.01%

Input (Sensitivity/Impedance)
- PHONO ..... 2.5 mV/47 kΩ
- CD, VCR/LINE, TAPE 1/DAT, TAPE 2 ..... 150 mV/22 kΩ

Phono Overload Level (T.H.D. 0.01%, 1,000 Hz)
- PHONO ..... 130 mV

Output (Level/Impedance)
- TAPE REC ..... 150 mV/2,2 kΩ

Frequency Response
- PHONO (RIAA Equalization) ..... 20 Hz to 20,000 Hz ±0.5 dB
- CD, VCR/LINE, TAPE 1/DAT, TAPE 2 ..... 10 Hz to 70,000 Hz $^{+0.5}_{-3.0}$dB

Signal-to-Noise Ratio (DIN, continuous power/50 mW)
- PHONO ..... 68 dB/59 dB
- CD, VCR/LINE, TAPE 1/DAT, TAPE 2 ..... 86 dB/60 dB

Tone control
- BASS ..... ±8dB (100Hz)
- TREBLE ..... ±8dB (10kHz)

FM Tuner Section

Frequency range ..... 87.5 MHz to 108 MHz

Usable Sensitivity ..... 10.8 dBf, IHF (0.95 μV/75 Ω)

50 dB Quieting Sensitivity
- MONO ..... 15.3 dBf (1.6 μV/75 Ω)
- STEREO ..... 37.1 dBf (19.5 μV/75 Ω)

Sensitivity (DIN)
- MONO ..... 0.9μV/75 Ω
- STEREO ..... 29 μV/75 Ω

Signal-to-Noise Ratio
- MONO ..... 78 dB (at 85 dBf)
- STEREO ..... 75 dB (at 85 dBf)

Signal-to-Noise Ratio (DIN)
- MONO ..... 66 dB
- STEREO ..... 66 dB

Distortion
- STEREO ..... 0.3% (1 kHz)

Alternate Channel Selectivity ..... 55 dB (400 kHz)

Stereo Separation ..... 35 dB (1 kHz)

Frequency Response ..... 30 Hz to 15 kHz (±1 dB)

Antenna Input ..... 300 Ω balanced, 75 Ω unbalanced

AM Tuner Section

Frequency range ..... 531 kHz to 1,602 kHz
Sensitivity
IHF, Loop antenna..... 300 μV/m
Selectivity..... 20 dB
Signal-to-Noise Ratio..... 50 dB
Antenna..... AM Loop Antenna

Miscellaneous

Power Requirements .....a.c. 240 Volts ~, 50/60 Hz
Power Consumption ..... 250 Watts
Dimensions ..... 420(W) x 120(H) x 337(D) mm
Weight (without package) ..... 6.2 kg (13 lb 11 oz)

Furnished Parts

FM T-type Antenna..... 1
AM Loop Antenna 1
Operating Instructions 1

NOTE:
Specifications and design subject to possible modification without notice due to improvements.

* Measured by audio spectrum analyzer.